

IAP5 Rec'd PCT/PTO 30 MAR 2006

PATENT  
10/574118 6-147(US)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re US Patent Application of )  
Frank Morton )  
Filed: Simultaneously herewith. )  
Titled: ANTI-BACKLASH NUT ASSEMBLY )  
FOR A LEAD SCREW ) Date: March 30, 2006.

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria VA 22313-1450

Dear Sir:

Enclosed herewith are the following patent documents that are listed on attached Form  
PTO/SB/08A:

United States Patent No. 2,715,341, issued August 16, 1955, to Hogan, and titled  
BUMPER STOP, discloses a stop that dissipates rotational energy as friction operating  
through a relatively long distance.

United States Patent No. 4,131,031, issued December 26, 1978, to Erikson et al., and  
titled ANTI-BACKLASH NUT ASSEMBLY, discloses an anti-backlash nut that  
includes a nut that is axially split into first and second portions, both of which have an  
internal thread complementary to the external thread of the screw. The two portions of  
the nut are retained in the radial direction by a spacer, and a spring is used to apply  
biasing in the longitudinal direction to minimize backlash.

United States Patent No. 4,249,426, issued February 10, 1981, to Erikson et al., and  
titled ANTI-BACKLASH NUT HAVING LONGITUDINAL FLEXURAL MEMBERS  
WITH RAMPS THEREON AND MEANS TO APPLY AN AXIAL PRE-LOAD

INFORMATION DISCLOSURE STATEMENT  
Inventor: Frank Morton

PATENT  
226-147(US)

**10/574118**

FORCE TO SAID RAMPS, discloses an anti-backlash nut having a tapered surface at one end thereof, a drive nut having a complementary tapered surface on the anti-backlash nut, and biasing means urging the tapered surfaces together.

United States Patent No. 4,353,264, issued October 12, 1982, to Erikson et al. and titled ANTI-BACKLASH NUT ASSEMBLY, discloses an anti-backlash nut includes a nut that is split into first and second portions, both of which have internal threads complementary to the external thread of the screw. The two portions of the nut are retained in the radial direction by a coaxial cylinder. A spacer means is mounted on the retainer means intermediate opposing surfaces of the nut portions and biased against at least one of the surfaces such that any gap which may occur between the thread of the screw and the thread of the nut will be closed by movement of the spacer.

United States Patent No. 4,433,590, issued February 28, 1984, to Benoit et al., and titled ANTI-BACKLASH NUT ASSEMBLY, discloses a anti-backlash nut that includes first and second nut portions each having an internal thread complementary to the external thread of the screw. A coil spring interconnected between the first and second nut portions applies torque thereto to eliminate backlash.

United States Patent No. 4,679,457, issued July 14, 1987, to Nishikawa et al., and titled BACK-LASH ELIMINATING MECHANISM IN SCREW-TYPE DRIVING DEVICE, discloses a back-lash eliminating mechanism in which a flexible nut member is disposed close to a screw member to eliminate back-lash at the thread engagement portion between the screw member and the nut member.

United States Patent No. 4,753,122, issued June 28, 1988, to Nishikawa et al., and titled SCREW-NUT TYPE MECHANISM, discloses a rotatable threaded shaft with a nut

INFORMATION DISCLOSURE STATEMENT  
Inventor: Frank Morton

PATENT  
226-147(US)  
**10/574118**

engaged with the screw shaft and a driven member secured to the nut. The nut has a axially tapered outer surface which is formed with external threads. The driven member has an internally threaded, axially tapered hole with which the nut is threadably engaged. A retaining plate is provided to hold the nut on the driven member to prevent rotation of the nut.

United States Patent No. 5,732,596, issued March 31, 1998, to Erikson et al., and titled ANTI-BACKLASH NUT ASSEMBLY, discloses an anti-backlash nut having internal threaded complementary to the threads of a screw. The nut has two portions movable as a unit and also rotatable relative to each other on the screw. Means are connected to the nut halves to induce their relative rotation on the screw in opposite directions and there are elastomeric friction means between the two portions to limit their relative rotational movement.

United States Patent No. 5,839,321, issued November 24, 1998, to Siemons, and titled BACKLASH COMPENSATING ASSEMBLY, discloses an anti-backlash nut having two portions engaged to prevent relative rotational motion but permit relative axial motion. A sleeve is disposed between the nut portions and the ends thereof abut annular rims formed on the nut portions. One end of the sleeve has a helical ramp that abuts a complementary shaped ramp formed on the annular rim of one nut portions, while the other end of the sleeve is flat and abuts a flat surface formed on the annular rim of the other nut portion. A torsion spring biases the sleeve rotatively with respect to the nut portions. Rotation of the sleeve causes the ramps on the sleeve to cam against the ramps on the one nut portion to move the nut portions axially away from each other, thereby

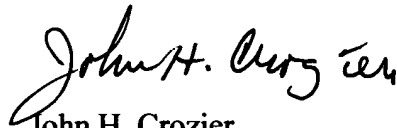
INFORMATION DISCLOSURE STATEMENT  
Inventor: Frank Morton

**1AP5 Rec'd PCT/PTO 30 MAR 2006**  
PATENT  
226-147(US)  
**10/ 574 118**

forcing the threads to the nut portions into engagement with the threads of the lead screw,  
thus eliminating backlash.

United States Patent No. 6,240,798, issued June 5, 2001, to Erikson et al., and titled  
REINFORCED ANTI-BACKLASH NUT WITH GRADUATED THREAD DEPTH  
FINGERS, discloses an anti-backlash nut that has flexure members which are  
continuously biased inwardly against a lead screw by a force-applying sleeve which acts  
on ramps on the flexure member. Means on the longitudinal flexure members and the  
force applying sleeve impart rigidity to the longitudinal flexure members in a direction  
tangential to the longitudinal direction of movement of the nut.

Respectfully submitted,



John H. Crozier,  
Attorney for Applicant,  
Reg. No. 30,371  
1934 Huntington Turnpike  
Trumbull CT 06611-5116  
Tel: (203) 375-9118  
Fax: (203) 378-8108

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|  |  |                          |                  |
|--|--|--------------------------|------------------|
| Substitute for form 1448A/PTO                            |  | <b>Complete If Known</b> |                  |
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b> |  | Application Number       | <b>10/574118</b> |
|  |  | Filing Date              |                  |
|  |  | First Named Inventor     | Frank Morton     |
|  |  | Art Unit                 |                  |
|  |  | Examiner Name            |                  |
| (Use as many sheets as necessary)                        |  | Attorney Docket Number   | 226-147(US)      |
| Sheet 1 of 1   |  |                          |                  |

| U. S. PATENT DOCUMENTS |                       |  |                                |  |   |
|------------------------|-----------------------|--|--------------------------------|--|---|
| Examiner Initials*     | Cite No. <sup>1</sup> | Document Number                          | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where<br>Relevant Passages or Relevant<br>Figures Appear |
|                        |                       | Number-Kind Code <sup>2</sup> (if known) |                                |  |   |
|                        |                       | US- 2,715,341                            | 08-16-1955                     | Hogan  |   |
|                        |                       | US- 4,131,031                            | 12-26-1978                     | Erikson et al.                                     |   |
|                        |                       | US- 4,249,426                            | 02-10-1981                     | Erikson et al.                                     |   |
|                        |                       | US- 4,353,264                            | 10-12-1982                     | Erikson et al.                                     |   |
|                        |                       | US- 4,433,590                            | 02-28-1984                     | Benoit et al.                                      |   |
|                        |                       | US- 4,679,457                            | 07-14-1987                     | Nishikawa et al.                                   |   |
|                        |                       | US- 4,753,122                            | 06-28-1988                     | Nishikawa et al.                                   |   |
|                        |                       | US- 5,732,596                            | 03-31-1998                     | Erikson et al.                                     |   |
|                        |                       | US- 5,839,321                            | 11-24-1998                     | Siemons  |   |
|                        |                       | US- 6,240,798                            | 06-05-2001                     | Erikson et al.                                     |   |
|                        |                       | US-                                      |                                |  |   |
|                        |                       | US-                                      |                                |  |   |
|                        |                       | US-                                      |                                |  |   |
|                        |                       | US-                                      |                                |  |   |
|                        |                       | US-                                      |                                |  |   |
|                        |                       | US-                                      |                                |  |   |
|                        |                       | US-                                      |                                |  |   |
|                        |                       | US-                                      |                                |  |   |

| FOREIGN PATENT DOCUMENTS |                       |   |                                |  |   |                |
|--------------------------|-----------------------|---|--------------------------------|--|---|----------------|
| Examiner Initials*       | Cite No. <sup>1</sup> | Foreign Patent Document   | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines,<br>Where Relevant Passages<br>or Relevant Figures Appear | T <sup>6</sup> |
|                          |                       | Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known) |                                |  |   |                |
|                          |                       |   |                                |  |   |                |
|                          |                       |   |                                |  |   |                |
|                          |                       |   |                                |  |   |                |
|                          |                       |   |                                |  |   |                |
|                          |                       |   |                                |  |   |                |
|                          |                       |   |                                |  |   |                |
|                          |                       |   |                                |  |   |                |

|                    |                 |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.